

Experiment Number: 20321 - 01

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH
AVERAGE SEVERITY GRADES[b]**

Date Report Requested: 10/15/2014

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

F1_Rev.1_R2

NTP Study Number: C20321
Lock Date: 01/05/2007
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 3.0.2.2_002
PWG Approval Date: NONE

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS MALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250 mg/kg | 500 mg/kg | 1000 mg/kg |
|-------------------------------|---------|------------|-----------|-----------|-----------|------------|
|-------------------------------|---------|------------|-----------|-----------|-----------|------------|

Disposition Summary

| | | | | | | |
|----------------------------------|----|----|----|----|----|----|
| Animals Initially In Study | 10 | 10 | 10 | 10 | 10 | 10 |
| Early Deaths | | | | | | |
| Dosing Accident | | 1 | | | | |
| Natural Death | | 1 | | | | |
| Survivors | | | | | | |
| Terminal Sacrifice | 10 | 8 | 10 | 10 | 10 | 10 |
| Animals Examined Microscopically | 10 | 10 | 10 | 10 | 10 | 10 |

ALIMENTARY SYSTEM

| | | | | | | |
|---|----------|----------|----------|----------|----------|----------|
| Esophagus | (10) | (2) | (0) | (0) | (0) | (10) |
| Intestine Large, Cecum | (10) | (1) | (0) | (0) | (0) | (10) |
| Intestine Large, Colon | (10) | (2) | (0) | (0) | (0) | (10) |
| Serosa, Parasite Metazoan | | | | | | 1 |
| Intestine Large, Rectum | (10) | (2) | (0) | (0) | (0) | (10) |
| Parasite Metazoan | | | | | | 2 |
| Intestine Small, Duodenum | (10) | (1) | (0) | (0) | (0) | (10) |
| Intestine Small, Ileum | (10) | (1) | (0) | (0) | (0) | (10) |
| Intestine Small, Jejunum | (10) | (1) | (0) | (0) | (0) | (10) |
| Liver | (10) | (10) | (10) | (10) | (10) | (10) |
| Inflammation, Chronic | 10 [1.0] | 10 [1.0] | 10 [1.0] | 10 [1.0] | 10 [1.0] | 10 [1.0] |
| Vacuolization Cytoplasmic | 10 [1.1] | 10 [1.0] | 10 [1.0] | 10 [1.0] | 10 [1.0] | 10 [1.0] |
| Mesentery | (0) | (0) | (0) | (0) | (0) | (1) |
| Fat, Necrosis | | | | | | 1 [3.0] |
| Oral Mucosa | (0) | (0) | (0) | (0) | (1) | (0) |
| Cyst, Focal | | | | | 1 | |
| Pancreas | (10) | (2) | (0) | (0) | (0) | (10) |
| Infiltration Cellular, Mononuclear Cell | 1 [1.0] | | | | | |
| Acinus, Atrophy | 2 [1.0] | | | | | 1 [1.0] |
| Arteriole, Inflammation | 1 [1.0] | | | | | |
| Salivary Glands | (10) | (2) | (0) | (0) | (0) | (10) |
| Stomach, Forestomach | (10) | (2) | (0) | (0) | (0) | (10) |
| Stomach, Glandular | (10) | (2) | (0) | (0) | (0) | (10) |
| Muscularis, Mineralization | | | | | | 1 [2.0] |

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS MALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250 mg/kg | 500 mg/kg | 1000 mg/kg |
|-----------------------------------|----------|------------|-----------|-----------|-----------|------------|
| CARDIOVASCULAR SYSTEM | | | | | | |
| Blood Vessel | (10) | (2) | (0) | (0) | (0) | (10) |
| Heart | (10) | (2) | (0) | (0) | (0) | (10) |
| Cardiomyopathy | 10 [1.2] | 2 [1.0] | | | | 10 [1.1] |
| Infiltration Cellular, Mixed Cell | 1 [1.0] | | | | | |
| Pigmentation | 1 [1.0] | | | | | |
| ENDOCRINE SYSTEM | | | | | | |
| Adrenal Cortex | (10) | (2) | (0) | (0) | (0) | (10) |
| Adrenal Medulla | (10) | (2) | (0) | (0) | (0) | (10) |
| Islets, Pancreatic | (10) | (2) | (0) | (0) | (0) | (10) |
| Parathyroid Gland | (7) | (2) | (0) | (0) | (0) | (10) |
| Pituitary Gland | (10) | (2) | (0) | (0) | (0) | (10) |
| Thyroid Gland | (10) | (2) | (0) | (0) | (0) | (10) |
| GENERAL BODY SYSTEM | | | | | | |
| None | | | | | | |
| GENITAL SYSTEM | | | | | | |
| Epididymis | (10) | (2) | (0) | (0) | (0) | (10) |
| Inflammation, Chronic Active | 5 [1.0] | | | | | |
| Preputial Gland | (10) | (2) | (0) | (0) | (0) | (10) |
| Inflammation | 3 [1.0] | | | | | 3 [2.0] |
| Prostate | (10) | (2) | (0) | (0) | (0) | (10) |
| Inflammation, Chronic Active | 1 [1.0] | | | | | |
| Seminal Vesicle | (10) | (2) | (0) | (0) | (0) | (10) |
| Testes | (10) | (2) | (0) | (0) | (0) | (10) |

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS MALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250 mg/kg | 500 mg/kg | 1000 mg/kg |
|-----------------------------------|----------|------------|-----------|-----------|-----------|------------|
| HEMATOPOIETIC SYSTEM | | | | | | |
| Bone Marrow | (10) | (2) | (0) | (0) | (0) | (10) |
| Lymph Node, Mandibular | (10) | (2) | (0) | (0) | (0) | (10) |
| Lymph Node, Mesenteric | (10) | (9) | (10) | (10) | (10) | (10) |
| Infiltration Cellular, Histiocyte | 10 [2.9] | 9 [3.0] | 10 [2.9] | 10 [3.0] | 10 [3.0] | 10 [3.0] |
| Spleen | (10) | (2) | (0) | (0) | (0) | (10) |
| Thymus | (10) | (2) | (0) | (0) | (0) | (10) |
| INTEGUMENTARY SYSTEM | | | | | | |
| Mammary Gland | (10) | (2) | (0) | (0) | (0) | (10) |
| Skin | (10) | (2) | (0) | (0) | (0) | (10) |
| MUSCULOSKELETAL SYSTEM | | | | | | |
| Bone | (10) | (2) | (0) | (0) | (0) | (10) |
| NERVOUS SYSTEM | | | | | | |
| Brain | (10) | (2) | (0) | (0) | (0) | (10) |
| RESPIRATORY SYSTEM | | | | | | |
| Lung | (10) | (10) | (10) | (10) | (10) | (10) |
| Infiltration Cellular, Histiocyte | 1 [1.0] | 1 [1.0] | | | 1 [1.0] | 1 [1.0] |
| Inflammation, Granulomatous | | 4 [1.5] | 8 [1.6] | 8 [1.4] | 6 [1.0] | 2 [1.5] |
| Inflammation, Acute | | 2 [1.5] | | | | |
| Inflammation, Chronic Active | 7 [1.1] | 1 [1.0] | 9 [2.3] | 6 [1.0] | 8 [1.1] | 7 [1.1] |
| Metaplasia, Osseous | 1 [1.0] | 2 [1.0] | | | | |
| Nose | (10) | (2) | (0) | (0) | (0) | (10) |
| Inflammation, Chronic Active | | | | | | 1 [2.0] |
| Trachea | (10) | (2) | (0) | (0) | (0) | (10) |

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Experiment Number: 20321 - 01

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH
AVERAGE SEVERITY GRADES[b]**

Date Report Requested: 10/15/2014

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS MALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250 mg/kg | 500 mg/kg | 1000 mg/kg |
|---|----------|------------|-----------|-----------|-----------|------------|
| Infiltration Cellular, Mononuclear Cell | 1 [1.0] | | | | | 2 [1.0] |
| SPECIAL SENSES SYSTEM | | | | | | |
| Eye | (10) | (3) | (0) | (0) | (0) | (10) |
| Harderian Gland | (10) | (2) | (0) | (0) | (0) | (10) |
| Infiltration Cellular, Mononuclear Cell | 2 [1.0] | | | | | |
| Inflammation, Chronic Active | | | | | | 1 [2.0] |
| Bilateral, Inflammation, Chronic Active | | | | | | 1 [3.0] |
| URINARY SYSTEM | | | | | | |
| Kidney | (10) | (2) | (0) | (0) | (0) | (10) |
| Infiltration Cellular, Mononuclear Cell | 1 [1.0] | | | | | 2 [1.0] |
| Mineralization | 8 [1.0] | 1 [1.0] | | | | 6 [1.0] |
| Nephropathy | 10 [1.0] | 1 [1.0] | | | | 10 [1.1] |
| Urinary Bladder | (10) | (2) | (0) | (0) | (0) | (10) |
| Inflammation, Chronic | | | | | | 1 [1.0] |
| Muscularis, Mineralization | | | | | | 1 [1.0] |

*** END OF MALE ***

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS FEMALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250mg/kg | 500 mg/kg | 1000 mg/kg |
|---------------------------------|---------|------------|-----------|----------|-----------|------------|
|---------------------------------|---------|------------|-----------|----------|-----------|------------|

Disposition Summary

| | | | | | | |
|----------------------------------|----|----|----|----|----|----|
| Animals Initially In Study | 10 | 10 | 10 | 10 | 10 | 10 |
| Early Deaths | | | | | | |
| Natural Death | 1 | | | | | |
| Survivors | | | | | | |
| Terminal Sacrifice | 9 | 10 | 10 | 10 | 10 | 10 |
| Animals Examined Microscopically | 10 | 10 | 10 | 10 | 10 | 10 |

ALIMENTARY SYSTEM

| | | | | | | |
|---------------------------|---------|---------|---------|---------|----------|----------|
| Esophagus | (10) | (0) | (0) | (0) | (0) | (10) |
| Intestine Large, Cecum | (10) | (0) | (0) | (0) | (0) | (10) |
| Intestine Large, Colon | (10) | (0) | (0) | (0) | (0) | (10) |
| Intestine Large, Rectum | (10) | (0) | (0) | (0) | (0) | (10) |
| Parasite Metazoan | | | | | | 1 |
| Intestine Small, Duodenum | (10) | (0) | (0) | (0) | (0) | (10) |
| Intestine Small, Ileum | (10) | (0) | (0) | (0) | (0) | (10) |
| Intestine Small, Jejunum | (10) | (0) | (0) | (0) | (0) | (10) |
| Liver | (10) | (8) | (8) | (9) | (10) | (10) |
| Inflammation, Chronic | 8 [1.3] | 8 [1.4] | 8 [1.8] | 9 [1.7] | 10 [1.4] | 10 [1.9] |
| Pancreas | (10) | (0) | (0) | (0) | (0) | (10) |
| Salivary Glands | (10) | (0) | (0) | (0) | (0) | (10) |
| Stomach, Forestomach | (10) | (0) | (0) | (0) | (0) | (10) |
| Stomach, Glandular | (10) | (0) | (0) | (0) | (0) | (10) |

CARDIOVASCULAR SYSTEM

| | | | | | | |
|------------------------------|---------|-----|-----|-----|-----|---------|
| Blood Vessel | (10) | (0) | (0) | (0) | (0) | (10) |
| Heart | (10) | (0) | (0) | (0) | (0) | (10) |
| Cardiomyopathy | 9 [1.0] | | | | | 9 [1.0] |
| Inflammation, Chronic Active | 1 [1.0] | | | | | |

ENDOCRINE SYSTEM

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS FEMALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250mg/kg | 500 mg/kg | 1000 mg/kg |
|---------------------------------|---------|------------|-----------|----------|-----------|------------|
| Adrenal Cortex | (10) | (0) | (0) | (0) | (0) | (10) |
| Adrenal Medulla | (10) | (0) | (0) | (0) | (0) | (10) |
| Islets, Pancreatic | (10) | (0) | (0) | (0) | (0) | (10) |
| Parathyroid Gland | (10) | (0) | (0) | (0) | (0) | (10) |
| Pituitary Gland | (10) | (0) | (0) | (0) | (0) | (10) |
| Cyst | | | | | | 1 |
| Thyroid Gland | (10) | (0) | (0) | (0) | (0) | (10) |

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

| | | | | | | |
|------------------------------|---------|-----|-----|-----|-----|------|
| Clitoral Gland | (10) | (0) | (0) | (0) | (0) | (10) |
| Inflammation, Chronic Active | 3 [1.3] | | | | | |
| Ovary | (10) | (0) | (1) | (0) | (0) | (10) |
| Left, Cyst | | | 1 | | | |
| Uterus | (10) | (0) | (0) | (0) | (0) | (10) |

HEMATOPOIETIC SYSTEM

| | | | | | | |
|---------------------------------------|----------|----------|----------|----------|----------|----------|
| Bone Marrow | (10) | (0) | (0) | (0) | (0) | (10) |
| Lymph Node, Mandibular | (10) | (0) | (0) | (0) | (0) | (10) |
| Lymph Node, Mesenteric | (10) | (10) | (10) | (10) | (10) | (10) |
| Infiltration Cellular, Histiocyte | 10 [2.8] | 10 [3.0] | 10 [2.9] | 10 [3.0] | 10 [3.0] | 10 [3.0] |
| Spleen | (10) | (0) | (0) | (0) | (0) | (10) |
| Lymphoid Follicle, Depletion Cellular | 1 [2.0] | | | | | |
| Thymus | (10) | (0) | (0) | (0) | (0) | (10) |

INTEGUMENTARY SYSTEM

| | | | | | | |
|---------------|------|-----|-----|-----|-----|------|
| Mammary Gland | (10) | (0) | (0) | (0) | (0) | (10) |
|---------------|------|-----|-----|-----|-----|------|

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS FEMALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250mg/kg | 500 mg/kg | 1000 mg/kg |
|--|---------|------------|-----------|----------|-----------|------------|
| Skin | (10) | (0) | (0) | (0) | (0) | (10) |
| MUSCULOSKELETAL SYSTEM | | | | | | |
| Bone | (10) | (0) | (0) | (0) | (0) | (10) |
| NERVOUS SYSTEM | | | | | | |
| Brain | (10) | (0) | (0) | (0) | (0) | (10) |
| RESPIRATORY SYSTEM | | | | | | |
| Lung | (10) | (10) | (10) | (10) | (10) | (10) |
| Infiltration Cellular, Histiocyte | 2 [1.0] | 1 [1.0] | 2 [1.0] | 2 [1.0] | | |
| Inflammation, Granulomatous | | 3 [1.3] | 6 [1.5] | 6 [1.5] | 6 [1.0] | 5 [1.4] |
| Inflammation, Acute | 1 [2.0] | | | | | |
| Inflammation, Chronic Active | 1 [1.0] | 4 [1.0] | 3 [1.7] | 6 [1.2] | 6 [1.2] | 8 [1.4] |
| Metaplasia, Osseous | | | | 1 [1.0] | | |
| Bronchiole, Metaplasia, Squamous | | | | | | 1 [1.0] |
| Nose | (10) | (0) | (0) | (0) | (0) | (10) |
| Squamous Epithelium, Hyperplasia | | | | | | 1 [1.0] |
| Trachea | (10) | (0) | (0) | (0) | (0) | (10) |
| Infiltration Cellular, Mononuclear Cell | 5 [1.0] | | | | | 4 [1.0] |
| SPECIAL SENSES SYSTEM | | | | | | |
| Eye | (10) | (0) | (0) | (0) | (0) | (10) |
| Harderian Gland | (10) | (0) | (0) | (0) | (0) | (10) |
| Infiltration Cellular, Mononuclear Cell | 1 [1.0] | | | | | |
| Inflammation, Chronic Active | 2 [1.0] | | | | | 3 [1.0] |
| Bilateral, Infiltration Cellular, Mononuclear Cell | | | | | | 1 [1.0] |
| Bilateral, Inflammation, Chronic Active | 1 [2.0] | | | | | |

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

Experiment Number: 20321 - 01

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH
AVERAGE SEVERITY GRADES[b]**

Date Report Requested: 10/15/2014

Test Type: 90-DAY

Tetrabromobisphenol A-bis(2,3-dibromopropyl ether)

Time Report Requested: 11:06:13

Route: GAVAGE

CAS Number: 21850-44-2

First Dose M/F: 01/09/06 / 01/10/06

Species/Strain: RATS/F344/N Tac

Lab: BAT

| Fischer 344-Taconic RATS FEMALE | 0 mg/kg | 62.5 mg/kg | 125 mg/kg | 250mg/kg | 500 mg/kg | 1000 mg/kg |
|---|---------|------------|-----------|----------|-----------|------------|
| URINARY SYSTEM | | | | | | |
| Kidney | (10) | (0) | (0) | (0) | (0) | (10) |
| Infiltration Cellular, Mononuclear Cell | | | | | | 1 [1.0] |
| Mineralization | 7 [1.0] | | | | | 5 [1.0] |
| Nephropathy | 2 [1.0] | | | | | 1 [1.0] |
| Urinary Bladder | (10) | (0) | (0) | (0) | (0) | (10) |

*** END OF REPORT ***

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)